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THE NEW REPTILE HOUSE AT THE ZOOLOGICAL GARDENS.

SINCE our last number appeared, the new Reptile House, which has been for some months in course of construction in the Zoological Gardens, has been opened to the public, and forms a notable addition to the many fine buildings which now adorn the grounds of the Society.

Visitors to the Zoological Gardens have long been aware of the inadequate accommodation available for the collection of Reptiles and Amphibians, which, too numerous to be displayed in the old Snake House, have had to be located some in the Insectarium, some in other parts of the Gardens, while a large number, of course, remained of necessity in their old quarters.

The Council of the Zoological Society having become fully convinced of the necessity for a new Reptile House, must have had no easy task to decide upon the form and fittings of a building in which so many special requirements had to be carefully considered, and particularly the necessity for maintaining in each of the cages the exact temperature suited to the occupants. All difficulties, however, appear to have been effectually overcome, and the Society is now in possession of a new building, which, while presenting a handsome exterior, is admirably adapted internally for the purpose for which it has been designed.

It is built of red brick, with copings and windows of the fine tawny scorch-stone from Corse Hall, which, during the last few years, has been used a good deal in red-brick architecture, and

with the colour of which it harmonises admirably. The edifice is about 120 ft. long by 60 ft. broad, and has a vestibule at the south front measuring 35 ft. by 14 ft. It is of one storey only, with a fine stone coping, on the top of which a balustrade runs all round the building. The windows, which for the sake of light and warmth face the south, are nine in number; and the roof, which is of double span from back to front, with iron girders and ties, has, for the same reason, each southern slope glazed, and each northern slope slated. The two roof-lights have thus a superficial area of 72 ft. by 6 ft. The walls are 21 ft. in height, exclusive of the balustrading above, while the roofs of the pavilions rise to 30 ft., and are surmounted with finials about 4 ft. higher.

Interiorly the wall-cages, wide and lofty, extend round three sides of the building, and in the centre of the floor is an oval tank about 25 ft. long for the Crocodiles and Alligators, with two smaller ones for Turtles and Terrapins.

The wall-cages, twenty-eight in number, are faced with plate-glass permanently fixed, so that the particular temperature maintained in each is not felt by the spectator, who is enabled to observe the activity of the reptiles under conditions favourable and natural to them, without being inconvenienced by an oppressive atmosphere. Moreover, a proper elevation is given to the tanks in the cages of the aquatic or semi-aquatic species, and these being made of glass, instead of zinc as heretofore, the movements of the creatures in the water can be well observed.

The heating of the cages and tanks is effected by means of hot-water pipes, the precise temperature in each case being regulated by the number and dimensions of the pipes used, as well as by an adjustment of their valves; the hot water being supplied by two of Weeks's tubular iron boilers sunk below the level of the ground in the rear of the building.

All round the interior of the Reptile House at the back of the wall-cages is an unseen passage for the keepers, to enable them to cleanse the cages properly, feed the occupants, and fill their baths for them, the access to the cages being by means of sliding doors.

The wall-cages extend round three sides of the building, the fourth side having a good entrance, with windows on either hand. As we enter the building and turn to the left, passing a few

window-cases containing Lizards, we come first to the poisonous Snakes, all of which, in addition to the English and scientific names, have on the front of their cages an ominous black label bearing the word "poisonous"; for there are no external characters by which the poisonous species may be distinguished from those which are not so.

It will give some idea of the nature and extent of the collection if we give a list of the species which are now on view. Taking the cages in order from the left, they are arranged as follows:—

1. The Hamadryad or Snake-eating Snake, *Ophiophagus bungarus*. India.
2. The Indian Cobra, *Naia tripudians*.
3. The Puff Adder, *Vipera arietans*. Cape of Good Hope.
4. The Indian Cobra. Another example.
5. The Water Viper, *Cenchris piscivora*. North America.
6. The Bushmaster, or "Surucucu," *Lachesis mutus*. Brazil.
7. The Carpet Viper, *Echis carinata*. India.
- „ The Cerastes Viper, *Vipera cerastes*. Egypt.
8. The Alligator Terrapin, *Chelydra serpentina*. North America.*
9. The Yellow Snake, *Chilobothrus inornatus*. Jamaica.
- „ The Australian Carpet Snake, *Morelia variegata*. Queensland.
- „ The West African Python, *Python sebae*.
- „ The Tree Boa, *Corallus hortulanus*. South America.
10. Three West African Pythons, *Python sebae*.
11. The Anaconda, *Eunectes murinus*. South America.
12. Four Madagascar Boas, *Pelophilus madagascariensis*.
13. The Reticulated Python, *Python reticulatus*. Malacca.
14. Another example of the same species.
15. Four Common Boas, *Boa constrictor*. South America.
16. The Two-streaked Python, *Python bivittatus*. China.
17. The Indian Python, *Pithon molurus*.
- „ The Indian Rat Snake, *Ptyas mucosa*.
18. Two Indian Pythons, recently purchased.
19. Matamata Terrapin, *Chelys matamata*. Amazons.
20. The Indian River Snake, *Tropidonotus quincunciatus*. India.
21. The Neck-marked Snake, *Geophtyas collaris*. Brazil.
22. The Striped Snake, *Tropidonotus sirtalis*. North America.
- „ The Common Ringed Snake, *T. natrix*. Europe.

* These Terrapins are carnivorous, and are fed about every other day on small pieces of raw meat.

23. The Lacertine Snake, *Cælopeltis lacertina*. Southern Europe.
24. The South American Rat Snake, *Spilotes variabilis*. Brazil.
25. Robben Island Snake, *Coronella phocarum*. Robben Island, S. Africa.
26. The Four-rayed Snake, *Elaphis quater-radiatis*. Southern Europe.
27. The Indian Eryx, *Eryx johni*.
 - „ The Conical Worm Snake, *Gongylophis conicus*. India.
 - „ The Indian-crowned Snake, *Zamenis diadema*.
 - „ The Spot-bellied Snake, *Zamenis ventrimaculatus*. Arabia.
 - „ The Glass Snake, *Pseudopus pallasii*. Dalmatia.
28. The Ocellated Lizard, *Lacerta ocellata*. Southern Europe.

In the window-cases we find—

1. The Smooth Snake, *Coronella lævis*, which of late years has been frequently met with in the South of England, and is probably much commoner than is generally supposed.
2. The Comb Lizard, from Mexico.
3. Skinks, from the Cape de Verd Islands and Australia.
4. The Heloderm, a poisonous Lizard from Mexico.
- 5, 6 and 7. The Derbian Zonure, a singular Spiny Lizard from S. Africa.

In the large centre tank may be seen the Mississippi Alligator; in the smaller tank to the right of the door on entering are kept various species of Tortoises and Terrapins, and in the left-hand tank will be found the Long-nosed Crocodile of West Africa, the Nilotic Crocodile, and the Sharp-nosed Crocodile of Central America and Jamaica.

The new Reptile House thus contains a really fine collection of Reptiles, Saurians, and Chelonians, many of great value, and most of which have only been procured with much trouble and expense. Some of them, as the Reticulated Python from Malacca, the Two-streaked Python from China, and the South-American Rat Snake, are really very beautiful creatures; and, after the first feeling of abhorrence which they inspire has passed away, one cannot but admire their singularly handsome appearance, and the elegance of all their movements.

It was an interesting sight to witness the transfer of all these creatures from their old quarters to their new abode, and one that will not readily be forgotten by those who had the privilege of being present on the occasion.

The first specimen moved was the large Mississippi Alligator, which measures about nine feet, and probably weighs not much

less than a couple of hundred pounds. Having regard to the dangerous use which the creature can make of its teeth and tail, a moderate blow from the latter sufficing to knock a man's legs from under him very speedily, it was necessary to exercise great caution in moving him. Moreover, the animal's weight made it no easy matter to carry it, even when firmly secured. Having been drawn up to the sides of the cage by means of a lasso round the neck, a second noose was slipped round the hinder quarters and the jaws bound together; when, in spite of all resistance, the huge creature was carried off in stout sacking and deposited in the new tank, where it was then released from bondage.

Even more difficult to move, from its much greater length and superior weight (about two hundredweight), was the huge South American boa, the Anaconda, *Eunectes murinus*. After a good deal of trouble it was induced to enter a box-trap in its cage in the old snake-house, from which it was transferred into an enormous bag, which was then tied up and carried triumphantly to the new Reptile House. But on being placed in one of the largest of the new cages, it proved almost as hard to get the creature out of the bag as it was to get it in, and, as may be supposed, it required something more than an ordinary shake to eject a writhing, wriggling mass weighing two hundredweight from a sack of extraordinary dimensions in which, apparently, it preferred to remain concealed.

In a similar manner the great Python, *Python reticulatus*, was transported to his new abode, in which he soon displayed himself to great advantage by uncoiling and extending himself to his entire length of twenty-five feet, giving the spectators an excellent view of a really magnificent creature.

The smaller snakes were of course much more readily transported when once caught, but great caution, naturally, had to be exercised in dealing with the poisonous species. The *modus operandi* was to drive them into boxes with sliding doors, which were carried bodily to the new cages, and the slides then withdrawn by means of a long iron rod.

In this way all were at length safely removed, and now appear to be quite at home in their new quarters. The fine roomy cages in which they can now move about with more freedom, climbing the tree-trunks which are provided for them, enable the spectators to obtain a much better view of them than

was formerly possible, and to judge very much better of their real proportions. The allied species are also more favourably placed for comparison, and it may thus be confidently expected that visitors to the Zoological Gardens, who, as a rule, know very little about Reptiles, will, with the facilities now afforded them, soon become much better instructed.

The Council of the Zoological Society may well be congratulated on the completion of this much needed addition to the Gardens, which, architecturally, as well as from an educational point of view, appears admirably suited to the purpose for which it has been designed.

ORNITHOLOGICAL NOTES FROM SKYE.

BY THE REV. HUGH A. MACPHERSON.

HAVING spent a month in Skye last spring, as I did in 1882 (see Zool. 1882, p. 418), I venture again to offer my rough jottings to your readers. In justice to the fauna of Skye, it is right to say that I had even less time to examine it than last year, owing to the presence of the Crofters' Commission, and many other demands on my time.

Of the Thrush tribe the only representative was the Song Thrush, young examples of which flew from the nest at Greshornish on May 8th, with us in Glendale a few days later. Like the Eigg Thrushes, the Skye birds often sing on a roof in the gloaming. I did not see either a Blackbird or Ring Ouzel this year; the latter would have bred one year at Waternish, had not Captain Macdonald killed the male, before he knew that the female was about.

The Robin was well represented, and it is strange in what wild situations one meets with this bird in Skye; on the hill-side, far from houses and even from underwood. The Common Wren was abundant. The Dipper haunts every burn, and nests under small cascades. The Common Whitethroat was represented in Glendale by a single pair, which nested in a gully between Glasphin and Fasach. The Willow Wren is absent from Glendale, but I saw two males at Greshornish on May 17th, and called the attention of the ladies to the song, which was new to them. The Wheatear and Whinchat breed plentifully throughout the parish

of Durinish; but I could find no Stonechats this year, and only saw a single male in 1882. The Pied Wagtail breeds in Glendale but not numerously.

The Meadow Pipit is the commonest small bird in the district, but the first young I found this year were hatched on June 2nd, while in 1882 I found young at least four days old on May 22nd, in Eigg. The Rock Pipit breeds all over the parish near the sea. The Sky Lark is numerous, and sings from 1.30 a.m. in clear weather.

The Yellow Bunting is plentiful; in Skye it often omits the final syllables of the song altogether. The Reed Bunting is common, and the Corn Bunting also numerous; the latter roosts chiefly on the ground, but a large flock always gathers together at dusk to roost in a small patch of firs. In these firs (the only trees in Glendale) three pairs of Chaffinches breed; this year the first young were only hatched on May 30th. Two of the old males sang in the firs the livelong day; the third insisted on singing his lullaby from a small green knoll, always perching on the bare sod—an idiosyncrasy new to me.

Twites are more numerous in Glendale than in 1882; even on May 20th we found a flock of between twenty and thirty feeding together on some broken ground. Their name is evidently due to their cheery "twee, twee" on the wing. The House Sparrow was present, but not numerous. The Hedge Warbler was not so strongly represented with us as near Portree; but one pair nested this year in Glendale. The Starling is as numerous as ever.

Three broods of Ravens were hatched out on our wild cliffs; our shooting tenant's keeper shot four, two of which he decapitated; the others I saw shot myself, and sent them to Mr. Aplin. Other broods were reared at Greshornish and Hosabost, for the old birds are too acute to be often betrayed by keepers.

The House Swallow is present with us in small numbers, but I cannot ascertain where it nests in Glendale; perhaps it may do so in the cliffs, for its usual haunts are scarce. The Goatsucker I have not yet seen in Durinish, though it breeds in the south of Skye. The Rock Dove is numerous; but our ground officer, a fair observer, states that it is numerically less strong than formerly. He ascribes its decrease to the fact that cattle are fed less out of doors during the winter than formerly, and that the Rock Doves, in consequence, now come off very badly at that

season. I am also assured that ours are larger and paler Rock Doves than those of Sleat, but I have not yet compared examples from the two districts.

At Greshornish and Dunvegan the Rook breeds numerous, and spies from the latter establishment often visit Glendale; in a year or two they will certainly descend on our small patch of firs. Jackdaws are scarce in Durinish. The Cornish Chough breeds in our parish, but only, so far as I know, in one single cliff, where they are preserved; this pair of old birds reared four young this year, which flew at the end of May.

Red Grouse are abundant in Glendale, and Partridges plentiful at Waternish; a few pairs of the latter breed in Glendale, and may be seen in very wild situations. The Lapwing is only a casual visitor to Glendale, though breeding abundantly in some parts of Skye.

The Oystercatcher is common, and breeds here; I took a clutch of eggs on May 19th. The Snipe also breeds plentifully with us, as does the Golden Plover. Apropos of Snipe, I may say that Dr. Maclean, Orbst, saw fifteen Solitary Snipe in Skye in the autumn of 1882, and shot seven of them on Orbst ground. Though familiar with the bird he had not previously seen it in Skye. A few Curlew are often to be seen about Dunvegan Loch. We had a few Whimbrel also up to May 20th, 1883. There is not cover with us for Woodcock to breed in, or perhaps some of the numbers that visit us in winter might remain.

The Common Sandpiper is to be heard everywhere, and I obtained a clutch of eggs on the edge of Dunvegan Loch. Whilst rowing to Dunvegan, on May 16th, I was delighted to see a pair of Purple Sandpipers feeding on the uncovered tangles; we backed water to examine them, in which their great tameness assisted. As I was hurrying to keep an engagement, I had to give them in charge of the ground officer to watch, as I hoped they might be tempted to breed on the Skinidin Island in question. Unfortunately they departed when the tide rose, having evidently only dropped to rest while proceeding to their breeding station.

Hérons often visit Glendale, chiefly from Sleat, I fancy, though a few pairs are said to breed near Dunvegan. The Corn Crakes bred in our garden this year as heretofore, but were late in going to nest; I had some excellent opportunities of studying their movements this year. A pair of Bald Coots were breeding this year

on Loch Waterstein. Our other freshwater birds are Mallard and a single pair of Dabchicks; the former breed numerously.

On May 19th I found the beginning of a Red-breasted Merganser's nest on one of the Skinidin Isles in Dunvegan Loch; it was within a short distance of the cairn in which I examined a clutch of seven eggs on May 30th, 1882. As I required some eggs for friends this year, but was unable to revisit the nest myself, I sent the ground officer back on June 17th, when he found nine eggs; he also found some people professedly searching for whelks where the Mergansers "grow," and therefore took all the sitting. *Mergus serrator* breeds in other localities in the parish besides our islets, and Mr. K. Macleod, of Greshornish, often shoots them late in the year on the Greshornish river, and considers them excellent eating, if properly dressed. Of other waterfowl I may mention that some Tufted Ducks visited a pool at Waternish, on which some tame Sheldrakes live, late in 1882, and that one example was shot.

Black Guillemots are very plentiful this year in our breeding-station and their feeding-grounds around it; they breed also about Dunvegan Head. Puffins and Razorbills are as numerous as usual. Cormorants are apparently more numerous with us this spring than last. Terns are very scarce indeed, and I saw only the five commonest species of Gulls. Adult Solan Geese often visit Lochs Portril and Dunvegan.

I was glad to hear that the Storm Petrels continue to hold their own in the only breeding-station known to me, where they are preserved and unmolested, unless by interfering Puffins. I was unable to get a glimpse of a single Manx Shearwater on the Skye coast this spring, though on Friday, May 11th, we saw a great number south and north off Coll, on and after 3 p.m.; some were resting on the water, but more exhibiting their quick semicircular flight; they struck us as being perhaps on passage.

Of nobler birds, I was unable to see any eyrie visited by the Sea Eagle. At the very last moment I scrambled to the foot of the nest from which a young one was shot in 1879; but though far less plentiful than formerly, and not now breeding on our ground, a young one was successfully reared in our neighbourhood last year, and the old birds are again breeding on that same property, though they have shifted their quarters to another part of it. Several pairs of Peregrines built this year on the sheer

cliffs which defy our local cragsmen; but I am sorry that at least four female Peregrines were destroyed in the parish after the breeding season was far advanced. Besides Peregrines I saw a Hen Harrier on the wing, sailing over Waterstein. Merlins, Kestrels, and Sparrowhawks were breeding in the parish, though I do not think we have ever any merlin nests on our ground. A single Common Buzzard was seen at Orbost in the middle of May last.

In making the foregoing observations, I have included in the ground under consideration the whole parish of Durinish, the north-west portion of Skye, which I trust I may be able to work out more fully later on.

THE LAND AND FRESHWATER MOLLUSCA IN THE VICINITY OF OXFORD.

BY S. SPENCER PEARCE, B.A.

(Concluded from p. 331.)

TERRESTRIAL MOLLUSCA.

Fam. I. LIMACIDÆ.

Arion ater, Linn.—Common in damp places. The species of this genus are to be found very early in the spring. A handsome dark brown variety is often taken in the Kimmeridge clay-pits of Shotover Hill, on the west side, and under rotting wood in Wick Copse.

A. flavus, Müller.—Rather rare; amongst dead leaves, especially those of the beech, in a wood on Wytham Hill (Feb. 1881); under decaying wood near Wick Copse. Mr. Whiteaves records it from Watlington. This species is somewhat difficult to distinguish from some of the yellow varieties of *Arion hortensis*; it seems, however, to be best separated from that species by the following points:—(1). In the shape of the body and foot when fully extended, which is more slender and tapering towards the tail. (2). In the position of the respiratory orifice, which is more centrally situated with respect to the shield. (3). In the colour of the animal, the tentacles always being black-purple or violet-brown; the ground-colour of the body being a pale blue-grey hue, nearly obscured by the prevailing yellow colour, which becomes—

towards the edges of the mantle, foot and tail—more vivid than is the case with any var. of *hortensis*.

A. hortensis, Férussac.—Very abundant and generally distributed. In addition to the ordinary grey and striped form, specimens of various yellow, buff, brown, and whitish hues also occur.

Limax flavus, Linn.—I have had no opportunity of meeting with this slug at Oxford, but doubtless it is still common in cellars, as mentioned in Mr. Whiteaves' list.

L. agrestis, Linn.—Common everywhere.

L. lævis, Müller.—Not uncommon around Oxford under stones and logs of wood in very wet places; by streams at South Hinksey, by Botley, at Wytham, and in Wick Copse. Unmistakably distinct from *L. agrestis*.

L. arborum, Bouchard-Chantereaux.—Rather local, being generally confined to beech-trees, which are not very plentiful in the immediate neighbourhood of Oxford. On beeches in wood on Wytham Hill and at Stonesfield. At Cumnor I found it in the rather unusual locality of a loose-stone wall. During hybernation this slug loses colour and becomes quite pale. I have it also from the more distant localities of Kingham, near Chipping Norton, and Goring; while Mr. Whiteaves records it from Watlington.

L. maximus, Linn.—I have not been fortunate enough to find this species. Mr. Whiteaves, writing of it under the name *cinereus*, says that it is remarkably scarce in the immediate vicinity of Oxford, but is very large and abundant in the southern parts of the county.

Fam. II. TESTACELLIDÆ.

Testacella haliotidea, Drap.—Occasionally met with in digging in vegetable gardens around Oxford, especially on the eastern side of the city. A specimen preserved in the University Museum, and added to Mr. Whiteaves' collection, was found "in a garden on Headington Hill," and I have received live specimens from a cabbage-field near St. Clement's Church.

Fam. III. HELICIDÆ.

Succinea putris, Linn.—Common on plants by rivers, streams and ditches. The most usual place where this and the following species hybernates is under the bark of pollard-willows that border

streams, up the trunks of which they crawl to the height of six to eight feet from the ground. They seem to have found by experience that this is the only way of securing safety from the extensive floods which are so frequent at Oxford during the colder months of the year.

Succinea elegans, Risso.—By ditches in several places; near Marston Ferry, near Watereaton, by the stream in Wick Copse, and near Eynsham Bridge.

Vitrina pellucida, Müller.—Rather common; in shady woods, and on hedge-banks amongst moss and dead leaves and under stones. It is active and very hardy: I have seen it crawling about when snow was on the ground during the commencement of a thaw which succeeded a severe frost, in January, 1881. It is found, indeed, more frequently alive in the winter months, from November till February, after which date the number of living individuals seems to dwindle, till in summer it is difficult to find any.

Zonites cellarius, Müller.—Abundant in damp places everywhere.

Var. *albida*.—Occasionally found with the ordinary form; Wytham Hill, and near Islip.

Z. alliarius, Müller.—Rather plentiful under stones, especially on limestone soils.

Z. glaber, Stüder.—Rare. I first took it very sparingly under stones lying about the borders of Wick Copse, and subsequently a few specimens from near Woodeaton.

Z. nitidulus, Drap.—Very abundant; burrows under loose earth.

Var. *nitens*.—In quarry of Portland sand on Shotover Hill, under loose stones.

Z. purus, Alder.—Rare. I have only found it amongst moss and dead leaves in Powder Wood, near Cumnor Hurst.

Z. radiatulus, Alder.—Not plentiful; in moist shady places and woods; Wick Copse, wood near Childsworth Farm, and Powder Wood.

Z. nitidus, Müller.—Plentiful on the marshy meadow land about Oxford, along canal and ditch banks.

Z. crystallinus, Müller.—Abundant in damp places.

Z. fulvus, Müller.—Not uncommon in woods and copses, both in dry and wet places. Specimens taken from a dry locality are generally of larger size and paler colour.

Helix aculeata, Müller.—Not plentiful; amongst moss and dead leaves in copse and woods; copse at Sunningwell, Wytham Wood, and according to Mr. Whiteaves in Stow Wood.

H. pomatia, Linn.—Very local; in woods and copses, and along the railway-bank near the village of Stonesfield, where it is plentiful. Mr. Whiteaves gives Wychwood Forest as a locality. The variety *albida* has been found near Charlbury and in Wychwood Forest (Whiteaves). A specimen of this variety is to be seen in the University Museum. A large colony of this snail is now thriving in the Botanic Gardens at Oxford, the descendants of specimens introduced from Stonesfield many years ago. In a large bed of foreign composite plants they are especially abundant, feeding on the lower and decaying leaves, for being an earth-loving species they hardly ever attempt to ascend the stems of the plants. During the genial weather of May and June they are busily engaged in laying their eggs, which are deposited to the number of fifty to eighty in a circular hole, excavated two or three inches deep for that purpose. A nest that I had under my observation contained fifty-eight eggs of a whitish colour, of the size of peas, laid on the 10th June. The somewhat opaque whiteness of the eggs, by the third week from deposition, had turned yellowish, and the fry emerged between the 8th and 18th July following, furnished with a smooth, transparent, fragile and somewhat globular, horn-coloured shell of one whorl and a half to one whorl and a quarter. For two or more days after emergence the young snails fed on the remnants of the egg-tests, but afterwards took readily to lettuce-leaves, of which they ate at first only the epidermis. The transparent horn-colour of the shell soon became more opaque, and colouring matter, in the shape of blotches and rudiments of brown bands, made its appearance by about the fourth week. The shells were added to during the whole period from their emergence from egg-state until just before they burrowed in earth for hibernation, in the first week of November, at which time between two and three-quarters and three whorls had formed. They remained dormant till the beginning of the following April, when they again became active and commenced making further additions to their shells.

H. aspersa, Müller.—Plentiful everywhere, though more abundant on the calcareous soils. A scalariform monstrosity, from Summertown, is in Mr. Whiteaves' collection in the University Museum.

H. nemoralis, Linn.—Abundant; taken in company with *H. arbustorum* on boggy ground by stream close to South Hincksey. The varieties numerous and very fine, among which I have some forms, of an unusual uniform green and dull purple colour, that I have not seen elsewhere.

H. hortensis, Müller.*—Very frequent, though not so abundant as the preceding species. At Radley I found this species with *nemoralis* and *arbustorum*. The var. *hybrida* I have taken on a hedge near Shotover Hill, and Mr. Whiteaves took it on nettles in Barton Lane and at Stanton St. John's.

H. arbustorum, Linn.—Very plentiful in moist places by river- and stream-banks. The var. *flavescens* is not uncommon near South Hincksey and Radley. Vars. *major* and *alpestris* rare; near South Hincksey.

H. cantiana, Montagu.—This species seems now to have a wider extension than in 1857, when Mr. Whiteaves recorded it in his list as limited to the Headington district. I have obtained it near South Hincksey, at Kennington, near Stonesfield, at Stow Wood, in quarries of coral-rag near Cowley and Horsepath, and of Portland sand on Shotover Hill. In quarries it is generally discovered under loose stones and *débris*, but its usual habitat is nettles and other plants by roadsides and hedge-banks. Hardly ever taken off calcareous subsoils.

H. rufescens, Pennant.—Very abundant everywhere.

Var. *albida*.—Common.

Var. *conica*.—Frequent, especially among dead leaves in woods.

Var. *minor*.—Rather common. All three varieties are found sometimes together.

H. concinna, Jeffreys.—Rather frequent on roadsides and hedgebanks under stones and among nettles; South Hincksey, Stonesfield, Garsington and Wheatley. I have it also from Kingham, about twenty-three miles N.W. of Oxford.

H. hispidâ, Linn.—Very abundant, especially in wet places.

Var. *albida*.—Under stones at Islip and at Stonesfield.

H. virgata, Da Costa.—Abundant in calcareous districts. The bandless variety is always found with the banded form.

* In the opinion of Dr. Gwyn Jeffreys it is impossible to distinguish *Helix hortensis* from *H. nemoralis* except as a variety, the former being more northern, and the latter more southern in geographical distribution.
—Ed.

H. caperata, Montagu.—Plentiful; in meadows, cultivated fields, and banks.

Var. *ornata*.—Near Stonesfield.

H. ericetorum, Müller.—Not plentiful; on dry grassy banks and borders of cultivated fields; near Wick Copse, with *H. virgata*, and roadsides near Cumnor Hurst and near Shotover Hill.

Var. *alba*.—Generally taken with the banded form.

Var. *minor*.—Rare; on short grass by large coral-rag quarry on the Headington Road, near Wheatley.

H. rotundata, Müller.—Abundant; under decaying wood, stones, and dead leaves.

H. rupestris, Stüder.—Apparently confined to loose stone walls, where it abounds on the under sides of topmost stones.

H. pygmæa, Drap.—Not plentiful; in damp and dry places and in woods amongst dead leaves in Powder Wood, and under stones by brook near South Hincksey, with *Vertigo edentula*, *Helix hispida*, and other moisture-loving mollusks.

H. pulchella, Müller.—The smooth form is plentiful in wet places under stones and logs; and the variety *costata*, the most common of the forms, is invariably found in dry places, as on stone walls and dry banks.

H. lapicida, Linn.—I have met with this species sparingly near Charlbury, on an ivied wall, but abundantly on beech trees on the chalk near Goring. The localities mentioned by Mr. Whiteaves are “common in an oolite quarry near Stow Wood,” where he says, “it comes out only after repeated rain, and crawls about on the wet brambles,” also in Wytham Wood and at Stonesfield. I have not been able to discover it in these places.

Bulimus obscurus, Müller.—Very abundant on the chalk, but not so plentiful on the oolite, yet generally diffused.

B. montanus has not yet been discovered nearer Oxford than Shirbourne Wood, near Watlington, as recorded by Mr. Whiteaves in his paper.

Pupa umbilicata, Drap.—Very abundant on ivied walls, old trees, &c.

Var. *edentula*.—Two specimens from an old pollard-willow near South Hincksey.

P. marginata, Drap.—Not uncommon on loose stone walls, dry banks, and under stones on the more calcareous soils. Generally in company with *H. pulchella*, var. *costata*. The best localities

are North and South Hinckseys, Islip, Woodeaton, Headington, Garsington, and Sandford, near Fyfield.

Vertigo pygmæa, Drap.—Rather frequent and generally diffused. It does not seem to show any preference for elevated situations, as Mr. Whiteaves has inferred from the localities he gives, viz., Headington Quarry, Bagley Wood, and near Stow Wood; for I have taken it under stones by brook near South Hincksey, together with *V. edentula*, and moreover it would be difficult to explain the fact that this shell is found in such numbers in the river alluvium washed down during flood-time, unless it inhabited the low-lying lands near the river.

V. pusilla, Müller.—Very local; it is still to be found in plenty on the ivied wall near Woodeaton, as recorded by Mr. Whiteaves.

V. edentula, Drap.—Rare; amongst dead leaves and moss, and under stones in woods, copses, and marshy places; by stream near South Hincksey, copse near Childsworth Farm, near Sunningwell, and "in a marshy hollow near Stow Wood," according to Mr. Whiteaves.

Balea perversa, Linn.—Common on old walls and trees, especially pollards.

Clausilia nigricans, Pulteney.—Abundant and generally distributed.

Var. *Everetti*.—Found plentifully with the type.

Var. *dubia*.—A few specimens of ventricose form and of larger size from Wytham Hill I take to belong to this variety. It also appears in the Whiteaves collection.

Var. *gracilior*.—A single individual of this variety is in the Whiteaves collection.

Var. *tumidula*.—At Islip. I have also a small wrinkled variety from loose iron-stone walls near Wheatley.

C. Rolphii, Gray.—I am able to record a new locality for this species, which is more frequently found in the southern counties. While searching under a hawthorn hedge near the village of South Hincksey, in the early spring of 1880, I came upon, first one, and then several others of this species. On comparing them with Surrey specimens in my cabinet they proved exactly similar in all points excepting colour, the Berkshire specimens being of a darker tawny brown. It must, I think, be put down as rare, as I have failed to find it again, either in the locality just mentioned or in any other in the vicinity.

C. laminata, Montagu. Not common; in woods, generally on or at the base of beech trees; on beech trees on Wytham Hill; at the foot of oak and ash trees in Wick Copse. Mr. Whiteaves gives Stow Wood and Stonesfield in his list.

Cochlicopa tridens, Pulteney.—Local and not very plentiful; found only amongst wet moss in groups of from six to ten individuals in swampy parts of Wick Copse and Stow Wood, near Headington.

C. lubrica, Müller.—Common and generally distributed.

Achatina acicula, Müller.—Dead shells of this species abundant in the surface-soil near Wick Copse, Headington, South Hincksey and other localities.

Fam. IV. CARYCHIDÆ.

Carychium minimum, Müller.—Abundant everywhere in damp places under stones, dead leaves, sticks and moss.

Fam. V. CYCLOSTOMATIDÆ.

Cyclostoma elegans, Müller.—On hedge-banks and woods where the soil is calcareous; parts of Bagley Wood, at South Hincksey, Wick Copse, near Headington, Horsepath, and also at Goring and Streatley.

Acme lineata, Drap.—After many searches for this rare species, I discovered five specimens among moss growing on a clump of *Carex paniculata*, by a stream running through the boggy swamp at the foot of Wick Copse.

This list contains ninety-three species, of which seven species, viz., *Sphærium ovale*, *Limax lœvis*, *L. arborum*, *Testacella halio-tidea*, *Zonites glaber*, *Z. purus*, and *Clausilia Rolphii*, are not mentioned at all in Mr. Whiteaves' list, and two others, viz., *Planorbis nautilus* and *Arion flavus*, hitherto recorded only as occurring near Banbury and at Watlington respectively, have been found quite near Oxford.

The following four species, which appear in Mr. Whiteaves' list, need to be rediscovered before they can be permanently retained in any catalogue of Oxford shells, viz.:—

(1). *Helix sericea*.—A species which Mr. Whiteaves himself failed to find, and which he recorded solely on the authority of a Mr. Norman, who took it "in marshy ground at the foot of Bullingdon," about thirty years ago.

(2). *Pupa secale*.—Of this species I have failed to find the slightest trace in any quarry at or near Headington. Mr. Whiteaves says it is "extremely local," yet "found in great abundance at Headington Quarry." Perhaps there has been some mistake about the identity of this species.

(3). *Limnæa glabra*.—Mr. Whiteaves mentions that the ditch whence he took this species was subsequently destroyed, and since then it does not seem to have been found again.

(4). *Limnæa glutinosa*.—"One fine specimen" was taken by Mr. Whiteaves "from a clear brook communicating with the river on the right-hand side of the path between the railway-lake and South Hinksey." This solitary specimen does not appear in the collection at the Museum. A series of this species will be found there, but the absence of labels makes it impossible to ascertain whether or not they come from the immediate neighbourhood of Oxford.

ORNITHOLOGICAL NOTES FROM MAYO AND SLIGO.

BY ROBERT WARREN.

THE winter and spring of 1882-83 were remarkable for the scarcity of wildfowl of all kinds in Killala Bay and the Estuary of the Moy. October began with a severe storm on the 1st, and, with the exception of nine days' frost and some snow from the 6th to the 15th of December, the entire winter was unusually wet and stormy; the lowest temperature indicated by the thermometer during the frost was on the night of the 10th December, when the mercury fell to 19°.

A fair number of Wigeon appeared at the latter end of November and during the week's frost in December, but they afterwards left for some other locality, and for the rest of the season the numbers that remained about the Estuary were smaller than I can remember.

A fair number of Curlews frequented the sands throughout the winter, but only a tithe of the immense flocks usually to be met with. The few Lapwings that were about disappeared, as usual, on the appearance of the frost in December. No Golden Plover visited the sands; a few Redshanks, and only three Greenshanks were to be seen about their old haunts along the

shores, and I do not remember meeting with either Turnstones or Godwits throughout the winter. An odd Sanderling or two, and a few Dunlins, but no Knots, were to be seen on the sands. Late in spring a score of Godwits were seen near Bartragh. It is very difficult to account for this great scarcity of wildfowl. Some say it was caused by the comparatively open winter, which was not sufficiently severe to drive them from more northerly feeding-grounds; but this I doubt, for I have often seen an average number of wildfowl of all kinds frequenting the bay and estuary during winters so mild and wet that nothing severer than hoar frost occurred throughout the season.

On the 14th November, when lying in my punt near the islands of Roserk, I heard the call of a Spotted Redshank, and saw the bird flying near the shore of the island, where I shot one of these birds on the 30th October, 1876. These little islands are favourite haunts of all our waders.

Some time early in November I saw an immature Long-tailed Duck on the river near Moyfort. On the 24th April I went down the Moyne channel in my punt almost as far as Killala, to see whether any waders had lingered on about the Bartragh and Moyne sands. I only met with about twenty Godwits and one Grey Plover, but neither Knots, Turnstones, nor Sanderlings were visible.

A pair of Long-eared Owls reared two young ones in an old Magpie's nest close by here, and from the many good opportunities I had of hearing the male bird calling, I am more inclined than ever to describe the call as a "moan" rather than a "hoot."

Of our summer visitors, the Sandwich Terns, as usual, formed the advance guard, appearing in the bay on the 1st of April; next were the Chiffchaffs, on the 6th; Willow Wrens on the 8th; and the first Swallow was seen near Ballina on the 23rd. Whimbrels were heard on the 28th April, and Common Terns visited the bay on the 29th, and on the same date both Corn Crake and Cuckoo were heard at Killanly. Sedge Warblers were observed on the islands of Lough Conn on the 19th May; but neither the Whitethroat nor Spotted Flycatcher were heard until the 20th.

On the 19th May, accompanied by my friend Dr. Darling, of Ballina, I visited some of the islands in Lough Conn, but the

only nests we found were a few of those of the Black-headed Gull, with eggs. The Common Terns, though assembled on the islands, had not begun to lay. When passing a reedy bay we disturbed a male Shoveller, which evidently had a mate hatching somewhere near; he showed much disinclination to leave the locality, never flying more than a couple of hundred yards away from where he was first put up. Although known to breed in other parts of Ireland, this is the first occasion on which I have met with the Shoveller in summer in this district.

Corn Crakes arrived in unusually large numbers this summer, and on trying to estimate the number of males heard calling in the adjacent fields I came to the conclusion that there were fully three times the average number.

NOTES AND QUERIES.

BIRDS.

Cuckoo's Eggs.— Everything connected with the mystery of the Cuckoo's egg is of such great interest to oologists that some observations of mine, made this summer, may be thought worthy of record. Near my residence there is a long meadow, bounded by a wide ditch, at the edge of which willow-bushes grow in profusion. On June 6th, whilst searching in these willows for nests of the Reed Warbler, I found one containing five eggs of that bird and one of the Cuckoo, all six slightly incubated. Visiting the locality again on June 23rd, I found another Reed Warbler's nest, with one egg and a Cuckoo's egg, both quite fresh. The same day I found a Reed Warbler's nest partly built. On June 28th I found an egg of the Cuckoo in this last-mentioned nest, but no eggs of the Reed Warbler. The date of my next visit was July 6th, when two eggs of the Reed Warbler, slightly incubated, were in this nest. On the same day I found another nest of this species, with two eggs and a Cuckoo's egg, all three freshly laid. These four eggs of the Cuckoo were undoubtedly laid by the same bird, for they are all marked with a reddish brown zone round the larger end, and bear such a strong resemblance to each other that it is only by my marks that I am able to distinguish them. The only perceptible difference is in the last found, which is slightly smaller than the other three, though exactly resembling them in colour and markings. I think that several deductions may safely be drawn from these facts. The first is that the Cuckoo does not always turn out an egg from the nest when she deposits her own. The reason that I have come to this conclusion is, that

during the many years that I have searched for nests of the Reed Warbler, I have only found three (including the nest now referred to) with five eggs. Four has always been considered a full clutch, and I have constantly known of two and three eggs only laid and hatched. Another is, that the Cuckoo will always prefer to deposit her eggs in the nests of the same species, if she can find them, and under precisely similar conditions. In this hedge of willows I found this year at least twenty nests of the Reed Warbler, some quite low down, within two feet of the water in the ditch, and others quite high up. The one I took on July 6th was over twenty feet from the ground, as I proved by measurement. Each nest that had a Cuckoo's egg was high up and had to be climbed for. Again, these four eggs being found within a distance of half a mile shows that the Cuckoo does not wander far if the nests of the species she prefers are tolerably plentiful. The number of eggs that a Cuckoo lays in a season has often been questioned. My observations prove that this bird laid at least four eggs this year. From the regularity with which the last three were laid, I think we may conclude that another egg would be deposited during the interval between the 6th and 23rd of June, which may have been placed in adjacent grounds to which I had not access. I did not see any trace of a young Cuckoo, in spite of a thorough search. My collection furnishes evidence of an analogous case. A correspondent of mine, in Saxony, sent me a series of four Cuckoo's eggs, all bearing such a strong resemblance to each other that probably every oologist who sees them would acknowledge that they were laid by the same bird. They were found as follows:—

June 5th,	in nest of Reed Warbler,	with 2 eggs.
„ 14th,	„ ditto,	„ 3 „
„ 22nd,	„ Marsh Warbler,	„ 4 „
July 9th,	„ Yellow Bunting,	„ 4 „

Here, again, there is a lapse of over a fortnight during which no Cuckoo's egg was found, and in this instance the lapse occurs between the third and fourth eggs, but in the one I now record between the first and second. As I have no evidence to prove that a thorough search was made for this presumably missing egg, but, on the other hand, should infer that no such search was made, I am of opinion that these two cases are worthy of record, as going some way to prove that the usual number of eggs laid by a Cuckoo is five. Should this Cuckoo return to the same locality next summer, I hope to continue my observations; and I trust that any of your correspondents who may have had similar experience will communicate it to 'The Zoologist.'—EDWARD BIDWELL (Richmond).

Peculiar Habit of the Starling.—Adverting to Mr. Cambridge's note on this matter (p. 334), I may observe that, for years past, I have encouraged the breeding of the Starling in the ivy above my dining-room

window, in partitioned boxes placed for them in the same vicinity, and elsewhere about my premises. Previously to the recent severe winters it was but rarely that less than twelve pairs bred in the places named. This year the number has risen from the two pairs of the springs succeeding those hard winters to five pairs, all of them nesting in the ivy or the boxes; and this year again, as in all former years, the eggs on the lawn, as noted by Mr. Cambridge, have been repeatedly observed. One day I picked up three, one entirely uninjured, a second with a hole in the side similar to the hole made by a Crow in a hen's or duck's egg when found and carried off by him in his bill, and the third much broken. My impression has been for years that these eggs—almost invariably carried away for from fifteen to thirty yards, not simply dropped as if thrown out from the nest—were so dealt with as the accompaniment, or at least the result, of some squabble among the occupants of the adjacent nest-places. That the Starlings do squabble, and carry on their scrimmages with some tenacity, moreover, almost goes without saying. I have seen them once and again actually fall in their resolute mutual squabbles on to the gravel terrace below their nests, and lie there, still grasping each other and struggling, for minutes. Once not long since one of my children went out to part a couple which had so fallen, or if not to pick them up. They lay with panting breasts and gaping bills until her hand was all but on them, and flew up into the ivy again. They fight on the chimney tops, too, and some half-dozen or half-score times within the last twenty years one of the combatants has come blundering down the chimney into the bed-room below, sometimes rather to the alarm or discomfiture of the occupant, if a child or a stranger. Nor is the "peculiar habit" limited to the eggs, in my experience. Young unfledged birds are dealt with on the same principle, and only this year I have seen two young Starlings, still in the down, sprawling on the grass. Here let me mention one other fact. My youngest son this year placed a Starling's egg under one of his tame Pigeons. The egg was duly hatched, and the young Starling fed by the Pigeon until it had grown to nearly its full size for leaving the nest. Unluckily he then took it into his head that the Pigeon did not feed its fosterling adequately, and began to supplement the feeding himself, but not with any knowledge of what the young Starling ought to be fed with, or when or how; and it consequently died—I think from nothing but injudicious dieting. If the bird had lived to fly, some interesting observations might perhaps have been made.—J. C. ATKINSON (Danby Parsonage).

Egyptian Nightjar in Nottinghamshire.—On the 23rd June last my keeper shot at a rabbit in Thieves Wood, near Mansfield, and at the report of the gun a Nightjar flew out of the edge of the wood. Its light colour attracting his attention, he fired his other barrel at it and brought it down. Thinking it only a young bird, he did not send it to me,

but kept it two days in his house, and then threw it into the back yard, where it lay until the afternoon of the same day, hens, pigeons, and children in the mean time doing their best to spoil its appearance. By good luck I went up to see him, and hearing that it was a light-coloured bird I went to look at it, and found what I thought was a pale variety of the Common Nightjar. I need hardly say how vexed I was that it had not been brought to me, but I cut off the wings and tail and brought them home. On comparing them with *Caprimulgus europæus*, I saw a striking difference, and sent back for the body, with which my birdstuffer has contrived to make a skin. I wrote to tell Mr. J. H. Gurney, jun., and he at once replied, "Are you sure it is a variety? I think it is very likely from your description to be *Caprimulgus isabellinus*; if so, it is a new British bird, and you have a prize indeed." I asked him to come and see it, which he did, bringing with him a skin of *Caprimulgus isabellinus*, kindly lent by Mr. Seebohm. On comparing it with mine, it agreed in every way, both in colour and markings, as well as size; but the most striking point is that the tarsus is an eighth of an inch longer than in *C. europæus*. We were both convinced, as also was Mr. E. Bidwell, who was staying here at the time. This species has occurred in Heligoland, and is now in Herr Gätke's collection. We have watched the place where my specimen was shot, but no other has been seen.—J. WHITAKER (Rainsworth Lodge, near Mansfield).

[A coloured plate of the Egyptian Nightjar will be found in Shelley's 'Birds of Egypt' (pl. 8), as also in Dresser's 'Birds of Europe' (vol. iv. pl. 272), where it is figured under the title of *Caprimulgus ægyptius*, Lichtenstein, that name apparently having precedence by two years over *Caprimulgus isabellinus*, bestowed by Temminck in 1825. The bird is distinguishable from the Common European Nightjar by its pale sandy grey coloration, more finely barred tail, with white tips to the inner webs of the primaries, and no white spots at the end of outer tail-feathers. Its range, according to Mr. Dresser, is not very extensive. It is found in North-East Africa, going eastward to Turkestan, where it was obtained by Severtzoff, and has wandered as far north as Heligoland (Ibis, 1877, p. 163), but has not hitherto been found in any other part of Europe. According to Capt. Shelley (*op. cit.*, p. 175) it is found throughout Egypt and Nubia, and appears to be most plentiful in spring and autumn, when it is generally in flocks. The eggs are described by Von Heuglin (Orn. Nord. Ost. Afr. vol. i. p. 128) as being smaller, paler, and more ochreous-yellow than those of *Caprimulgus europæus*, and clouded with light ash-blue and brownish yellow. Should further examination of Mr. Whitaker's specimen confirm his identification we shall have three species of *Caprimulgus* recorded as visitors to the British Islands; for, as some of our readers will remember, Mr. John Hancock some years ago obtained a specimen of *Caprimulgus*

ruficollis, Temminck, which was shot at Killingworth, near Newcastle, as recorded by him in 'The Ibis' for 1862, p. 39. This species occurs in Spain and Portugal, the South of France, and Malta, and is common in North-Western Africa.—ED.]

Note on an Egg of the Kea.—After many years of fruitless search and enquiry, through shepherds and musterers, by the kindness of Mr. H. Campbell I am at last in possession of an egg of this alpine parrot (*Nestor notabilis*, Gould). The specimen, with three others, was taken from a nesting-place in an almost inaccessible fastness of rocks, high up the mountains near Lake Wanaka. One egg was broken in getting it out; two of those remaining have also come to grief. Placed among a series of eggs of the Kaka, *N. meridionalis*, it can be picked out at once; it is larger, rougher, the surface being granulated, dotted over irregularly, with small pits, a very few slight chalky incrustations towards the smaller end. The shell is very stout and thick, exceeding in that respect any examples that I have seen of the eggs of the Kaka. It is broadly ovoid, measuring one inch seven lines in length; in width it is one inch three lines.—T. H. PORRS (Ohinitahi, June 5, 1883).

[The Kaka, or Brown Parrot, *Nestor meridionalis*, lays four white eggs in the hole of a tree. They are deposited on the decayed wood, without any other material by way of nest.—ED.]

Dipper singing in Winter.—Reverting to the observations on the Dipper singing during frost (p. 78 *et seq.*), I may say that the Messrs. Duckworth, of Carlisle, have heard it in full song in every month of the year. Until last year they had never heard it in November (as stated in a paper read by Mr. W. Duckworth before the Carlisle Field Club); but, in November, 1882, they both heard it in song on more than one occasion. Mr. W. Duckworth reminds me that though Dippers sing throughout the year, each individual, of course, sings for a much briefer period. He has also noticed that the Dippers of the "fell" streams often nest later than those whose breeding quarters are at a lower elevation. For my own part I have only heard the Dipper sing during winter, but then my experience of the bird is very different to the protracted attention which Messrs. Duckworth have always paid to it.—H. A. MACPHERSON (Carlisle).

Gannet caught in a Net.—On the 25th July, while returning from sea-fishing within a mile of the Glandore Pier, I was much interested by the tactics of a Gannet, *Sula bassana*, Briss. The bird was ranging almost side to side of the harbour, and every now and then would dart down after a fish, plunging into the water with such impetus as to throw up spray to the height of five or six feet. My boatman told me that some days before a Gannet had been found entangled in a mackerel-net. He stated that this bird breeds on "the Stags," an isolated rock in the ocean, off Toe Head

(between Cape Clear and the Galley). I had no opportunity of visiting "the Stags," and testing the accuracy of his statement. The Gannet is, I believe, seldom seen in such narrow and frequented waters as the Harbour.—C. DONOVAN, JUN. (Myross Wood, Leap, Co. Cork).

[The "Stags" above mentioned are not to be confounded with the "Stags of Broadhaven," off the coast of Mayo, a former nesting-haunt of the Gannet, but now deserted.—ED.]

Black Tern and Dunlin in Nottinghamshire.—When walking round the ponds here, on the 28th April last, I saw three of these elegant Terns flying over the water; they were very tame, often coming within ten yards of me. I was very much struck with their easy flight, and though numbers of Swallows and Martins were flying round they did not suffer by comparison. From the side of this piece of water I flushed a Dunlin, which flew right away. On another pond I found Tufted Ducks (four pairs), Shovellers, Common Ducks, and Teal.—J. WHITAKER (Rainworth Lodge, near Mountsfield).

A white Curlew.—A white Curlew, *Numenius arquata*, was captured on August 2nd, near Huntspill, and sent to me by Mr. Clement Govett, of that place. In a note sent with the bird Mr. Govett writes:—"A man caught it alive, entangled in some weeds in a ditch near the sea, and killed it by putting a needle through its head. Knowing you were fond of such birds I secured it, and have sent it to you."—JOHN MARSHALL (Belmont, Taunton).

[Albinism, though of not unfrequent occurrence amongst the passerine birds, is rarely observed in the *Limicola*. A long list might be made of white varieties of the former, but amongst the latter comparatively few could be enumerated. In February, 1851, a pure white Knot was shot near Maldon, Essex, as recorded in 'The Zoologist' of that year (p. 3116), and in the autumn of 1875 a white Redshank was shot at Shoreham, by Mr. Edward Bennett, of Western Terrace, Brighton. We have heard of a few white Woodcocks, and several that were either cream-coloured or buff. On January 1st, 1874, a pure white cock was shot near Tallow, Co. Waterford, and sent to Dublin for preservation by Mr. Williams, of Dame Street. Very rarely a white Snipe has been met with, but we have seen several that were pied or particoloured, having the quill-feathers in both wings white. In January, 1867, a keeper in the service of Mr. C. G. Elers, of Marsham Manor, Dorsetshire, shot a pied Snipe, which was described as "dun colour and white," and which is preserved in the collection of Mr. Marden, of Lyme Regis.—ED.]

Partial Melanism in the Missel Thrush.—An example of *Turdus viscivorus* has been sent to me, in which the breast and under parts are entirely black. The wings are black, edged with buff; the upper parts

a dark shade of the natural colour. This bird lived a year in the possession of my correspondent, Mr. Skinner, of River Street, N.—H. A. MACPHERSON (Carlisle).

Apparent Bird-tracks by the Sea-Shore.—At a meeting of the Academy of Natural Sciences of Philadelphia, held on October 3rd, 1882, Mr. Thomas Meehan called attention to what appeared to be the tracks of a three-toed bird in the sand near low water-mark, at Atlantic City. These tracks were of a nature that would be readily recognised by observers as bird-tracks; but while thinking of what bird could have caused them, and reflecting on the phenomenon of their being only found on the sand near low water-mark, Mr. Meehan noted on the face of the smooth, receding waves, spots where the water sparkled in the light, and he found this was caused by little ripples as the wavelets passed down over the half-exposed bodies of a small crustacean (*Hippa talpoidea*), and that the water, in passing over the bodies, made the trifid marks which had been taken for impressions of bird's feet. These little Crustacea take shelter in the sand near low water-mark, and enter head foremost in a perpendicular direction downwards, resting just beneath the surface. The returning wave took some of the surface sand with it, and then the looser portions of the bodies uppermost in the sand were exposed. Often the little creatures would be quite washed out; when recovering themselves, they would rapidly advance in a direction contrary to the retreat of the wave, and would enter the wet sand again as before, their sides being parallel with the shore. Their bodies terminate in a caruncular point which, with the position of the two hind-legs, offer a tridentate obstruction to the sand brought down by the retreating wave, and the water passing round the points made the three toe-like grooves, which resembled a bird's foot from one and a half to two inches long. The Crustacea, in their scrambles for protection beneath the sand, managed to keep at fairly regular distances from each other, and hence there was considerable regularity in the tracks, as if they had really been produced by birds. Although the author of these notes presented them as a trifle, yet it will be at once apparent that they are of great interest. Trifid impressions like these, filled with mud and the deposit then to become solid rock, would puzzle, if not altogether mislead, future observers.—*Nature*.

Habits of the Goldfinch and Grey Crow.—I can endorse Mr. Macpherson's account (p. 337) of the late abundance of the Goldfinch in Oxfordshire, from my own experience in Buckinghamshire, not far from Oxford. They were very plentiful in the "thistle season" of 1882, and I saw them as late as the 7th April last, in some abundance, feeding usually upon the seeds of the large teasel by the stream-sides. When Mr. Whitaker says (p. 337) that "instances of the Grey Crow breeding so

far north (as Warwickshire) are rare," does he not mean "south"? If not, a visit to the Hebrides, Norway, Russia, or Siberia, would doubtless induce him to alter his opinion.—H. H. SLATER (Whitley, Newcastle-on-Tyne).

Hybrids among Birds.—When writing, in reply to a correspondent, on the subject of hybrids between the Linnet and Greenfinch (p. 256), I had in my mind wild birds, not tame ones. Several have been obtained in different years at Brighton, and a few round London, in Norfolk, and elsewhere. Three have been recently mentioned in 'The Zoologist,' by the Rev. H. A. Macpherson and Mr. Hammond. I have one, if not two, which were said to have been taken wild in Norfolk, but I cannot altogether guarantee their antecedents; indeed, on looking closely, I strongly suspect that one of them is not what it purports to be, but a Linnet-Canary hybrid which had escaped and been shot. That such a conjunction is not unlikely you will agree. I have seen a Linnet-Canary hybrid in the collection of Mr. Henry Seebohm, which was shot wild near Amsterdam, but had probably escaped from a cage. As he has lent it to me, I may say that it is not the least like my bird, but Canaries vary so much among themselves that this is easily accounted for, and the parentage of both may be the same. Linnet-Greenfinch hybrids exist in the collections of Mr. Bond, Mr. Seebohm, Mr. Whitaker, and Mr. Stevenson, and probably many others. I believe none of these have been shot birds, and most of them bear evident marks of having been kept in confinement, which, as Mr. Phillips hints, might lead a sceptical naturalist to think they were tame-bred, and not really wild; but I believe an admittedly tame-bred Linnet-Greenfinch hybrid is a thing almost unknown. The marks of confinement have doubtless in all cases been produced by their having been netted alive and afterwards kept in a cage. In the bird-shows at Norwich, which are somewhat celebrated, I have never seen a Linnet-Greenfinch hybrid, but I have seen beautiful hybrid Bullfinches, which I believe were produced between the Bullfinch and Goldfinch and Bullfinch and Greenfinch. The experience of others, as regards the Crystal Palace shows, will I believe confirm this. As allusion has been made to the two Linnet-Greenfinch hybrids recorded in the 'Birds of Norfolk' (vol. i. p. 220), I may remark that one of them (recorded by my father, Zool. 1852, p. 3388) is unfortunately lost sight of; but the other, which was alive at the time of Mr. Stevenson's writing his work, is now stuffed in his collection, and shows in the most decided way the plumage of Linnet and Greenfinch, as also do those in Mr. Whitaker's and Mr. Seebohm's collections, and another which I saw some years ago at Mr. Gould's, taken, I believe, at Brighton. Mr. Stevenson's bird when alive even showed its double origin in its notes, which he informs me combined the shrill call-note of the Greenfinch with the soft trill of the Linnet. Mr. Phillips will find a great many interesting particulars in Mr. Henry Seebohm's works (especially in 'Siberia in

Europe' and 'Siberia in Asia') of the interbreeding of the Hooded and Carrion Crows, which always takes place where the breeding areas of the two meet, as in Siberia and in the South of Scotland. In the same way, Mr. Seebohm believes (Hist. Brit. Birds, part ii. p. 595) that great numbers of closely allied races and species—*e.g.* the Grey Shrike and Pallas's Grey Shrike—produce hybrids where they meet. Hybrids frequently take so closely after one or other of their parents as to be practically indistinguishable from them, as in the case of the hybrids between two species of gull, bred in Somersetshire by Mr. Cecil Smith (Zool. 1881, p. 450), or as in the case of the Hooded and Carrion Crow. On the other hand, hybrids occasionally do not exhibit the characters of either parent. I lately saw in Mr. Wm. Borrer's collection a hybrid between a Shelduck and a Wild Duck, the identity of which would certainly not have been guessed from its plumage. Another marked instance of this kind in the case of the Shelduck and one of the South-African Ruddy Shelducks has occurred in the Zoological Gardens (hybrid figured by Wolf, Proc. Zool. Soc. 1859; description, p. 442). Hybridism among ducks in confinement is a very wide field. Ducks will pair with their hybrid offspring, but hybrid ducks are not fertile among themselves.—J. H. GURNEY, JUN. (Northrepps, Norwich).

Wren utilising a Swallow's Nest.—Noticing a Wren often flying in and out of a shed last week, I found that it had adapted a Swallow's nest to its own requirements. I have known of a House Sparrow's nest being similarly used, but have not previously observed a Swallow's thus taken possession of. In my note last month on a "bold attack by a Partridge" (p. 336), for "Karlstad" read "Karlsbad."—E. F. BECHER (Southwell).

Black Guillemot in Co. Cork.—I secured a Black Guillemot, *Uria grylle*, in immature plumage, on the 21st July last, outside Glandore Harbour. The breast and under parts white, slightly speckled with greyish black; wing-coverts white. Length, $12\frac{1}{2}$ in.; wing, $5\frac{3}{4}$ in.; bill at front, 1 in.; tarsus, $1\frac{1}{8}$ in. Weight, 12 oz. Bill black; irides brown; legs dusky brown.—C. DONOVAN, JUN. (Myross Wood, Leap, Co. Cork).

[The Black Guillemot is found all round the Irish coast, and is stated by Thompson to be permanently resident.—ED.]

Variety of Redwing.—The Rev. W. Becher, of Southwell, on the 11th December last, shot a very beautiful variety of this bird, which he has kindly presented to me. It has all the ordinary markings in chestnut colour on a light cream ground, the feathers under the wings being unusually bright.—J. WHITAKER (Rainworth Lodge, near Mansfield).

Late nesting of the Nightjar.—Whilst walking across Strensall Common on August 19th, I flushed a Nightjar from the ground, whilst

sitting on one of its young, the age of which appeared to be about three days, a cracked egg from which it had proceeded lying beside it. The young bird was on the bare ground, in quite an exposed situation, its colour resembling very closely the ground on which it was placed. As the date named is unusually late for this species to have young, I should like to know whether any similar case has been observed.—W. HEWETT (York).

Blackbird building in a Waterspout.—On April 24th a nest of the Blackbird was taken out of a waterspout under the eaves of my good vicar's house, at an elevation of about 17 feet from the ground. It had successfully plugged the waste-pipe, and was full of water. The four eggs were of a normal coloration. The house stands in an old garden, with hedges and thick shrubs on every side. Nevertheless the male bird had for some weeks sung continuously on the housetop, as did another Blackbird this spring at Stannix.—H. A. MACPHERSON (Carlisle).

Sparrow imitating a Canary's Note.—I saw in a cage the other day a cock Sparrow, *Passer domesticus*, which during the winter had been rescued from starvation by an old woman of humane disposition, with the intention of letting it go when the winter was over. It had as a companion a Canary in another cage. It has now imitated so well the note and song of the Canary that it has sacrificed its liberty, for on account of its accomplishment the owner has altered her intention of freeing it.—E. F. BECHER (Southwell, Notts).

FISHES.

On the Occurrence of *Paralepis coregonoides* in Cornwall.—Mr. Dunn, of Mevagissey, as I have mentioned in my work on British Fishes, informed me that in 1869 he had obtained a fish which Mr. Couch considered to be *Paralepis coregonoides*, but as no detailed description could be found I waited to hear of another specimen before admitting it into the British Fauna. Having unexpectedly been permitted access to the late Mr. Couch's journals, through the kindness of his son, I have found the following entry, which I think affords a conclusive proof that this fish has been taken in Cornwall:—"June 2nd, 1869. I have received from Mr. Matthias Dunn a fish which appears certainly the species of which a figure is given in Griffiths' edition of Cuvier's 'Animal Kingdom,' p. 131, pl. xi. f. 3, *Paralepis coregonoides*, referring to Risso. I have taken a figure. The length of this example was ten inches, slender and moderately compressed, a mere edge along the lower portion of the body, six-eighths of an inch in depth; the upper jaw projecting an inch from the anterior border of the eye; the gape long; the lower jaw a little advanced beyond the upper; a conspicuous row of teeth along each jaw; the tongue long and narrow; eye large; from the point of the lower jaw to the border of

the gill-cover and pectoral fin two inches and a quarter. The lower border of the gill-covers of the left side overlap the corresponding portion of the right. The body is covered with moderately small scales, which were easily removed for the most part when the fish was caught. The lateral line begins even with the upper border of the hindmost gill-cover, and passes straight to the middle of the tail. The first dorsal fin begins five inches and a half from the snout, and consequently is nearer the caudal fin than to the point of the upper jaw; its posterior border incurved, as are those of the second dorsal and anal; both the last-named near the tail, their posterior portions so low as to be scarcely perceptible, and even the anterior portion of the second dorsal very slight. Ventral fins under the first dorsal; the tail rather wide, incurved, the anterior border of it above and below narrow and almost touching the lower rays of the second dorsal and anal. Where the scales remain and on the cheeks the colour is bright, with a tinge of blue, a little darker on the back, but where the scales are gone, as they are for the most part, the whole is brownish black, and along the lateral line are a series of triangular spots or marks. In its perfection the surface probably is brilliant. Mr. Dunn informs me it was found alive at Polkerris pier, and was caught with the hand; it was thought to have been wounded by another fish. He says:—"The sides presented an uniform silvery brightness, but the scales were so delicate that they at once came off on the hands when touched. When it came to me the point of the snout from the eye was injured. The eye was bright." I find in my edition of Cuvier (not Griffiths') a figure of *P. coregonoides*; that two species are figured, but the *P. coregonoides* has a particular marking on the hindmost gill-cover, not seen in my example, but this may be explained by the fact that the skin of that part was gone, and the lateral line of my example was unlike that of the other figure as copied from Risso."—FRANCIS DAY (Cheltenham).

Lamprey in the Wear.—A specimen of *Petromyzon fluviatilis* was caught in this river, near Finchale Abbey, last July. It measured about fourteen inches in length, and from its condition was evidently spawning at the time of being caught. There were from ten to twenty others in company with it. As far as I can understand, this is the only specimen which has been taken so far up the river, if taken in it at all. Dr. Tristram purchased it from the party by whom it was caught.—J. CULLINGFORD (University Museum, Durham).

VERMES.

Parasitical Worms in a Hornbill.—With this I send you some subcutaneous worms which I found in a young Hornbill—either the Elate Hornbill, *Buceros elatus*, or Black Hornbill, *B. atratus*. There were a considerable number of them, especially between the pectoral muscles.

One of the worms had eventually caused the death of the bird, as I found it in the pericardium, and there was extensive pericarditis. Some little time back I found some of the same (?) worms in a Blue-bearded Jay, *Cyanocorax chrysops*.—HERBERT LANGTON (115, Queen's Road, Brighton).

[On receipt of the specimens referred to we forwarded them to Prof. Spencer Cobbold, and invited his opinion. He has been kind enough to report as follows:—"The parasites from the Hornbill are of the species *Filaria attenuata*. Mr. Langton's 'find' is interesting, not only because no parasites have hitherto, so far as I am aware, been described from the *Bucerotidæ*, but also because, as he has informed us, one of the worms had caused a fatal result to the avian host. With the particular worm in question such an issue is certainly rare. As regards the Jay, if the worms were as long as those found in the Hornbill, they would undoubtedly be identical. In reference to the Entozoa of the larger and rarer exotic conirostral birds, little or nothing has been done. In *Cyanocorax pileatus* (Gray) an encysted Tapeworm or Ligule was long ago obtained from the muscles and subcutaneous tissues. As regards the worms obtained by Mr. E. J. Gibbins from the Red-backed Shrike (p. 345) permit me to observe that they were unquestionably those of another species—namely, *Filaria nodulosa*. Only the male worm has been properly described, and that by Schneider."—ED.]

Subcutaneous Worms in Birds.—Alluding to Mr. Gibbins' discovery of subcutaneous worms in a Shrike (p. 345), I may mention that I have found very few birds, of whose food animal life in any shape forms a part, without some kind of internal parasite, and I have been in the habit of collecting examples from all kinds of birds for years. As an instance, the Blackbird, when adult, will seldom be found to be without tapeworm, of which three, if not four, species would appear to attack it occasionally. Large *Filaria* also are found in the intestine. In addition, an adult Blackbird will nearly always be found (at least this is my experience) to have a small *Filaria* under the tendon of Achilles. All this will doubtless result from the Blackbird's fondness for pulmonate mollusca, which are such a fertile source of internal annoyance to some mammals, as well as to birds. The alimentary canal of a Kingfisher, which I dissected lately in Buckinghamshire, contained nothing recognisable but five pairs of small otoliths of fish, probably of small Dace, on which alone the digestive fluids seemed unable to act.—H. H. SLATER (Whitley, Newcastle-on-Tyne).

ARCHÆOLOGY.

Wild Geese formerly breeding in Cambridgeshire.—It would be interesting to ascertain when Wild Geese finally ceased to breed in our English fens. I have lately come across a letter which throws a little light

on the subject, and tends to prove that a wild goose of some species (said to be the Greylag) was to be found breeding in Cambridgeshire a century ago. The letter to which I refer is printed in Prof. Owen's edition of John Hunter's Essays (vol. ii. p. 321), and is addressed to Hunter by William Walcot, jun., of Oundle, Northamptonshire. It runs thus:—

“Oundle, Dec. 30th, 1790.

“Sir,—By the assistance of the servant to whom the care of our poultry is consigned, I am now enabled to give you a more particular account of the geese I some time since sent you, and which I have had the satisfaction to hear were acceptable. To the best of my recollection, it was in the summer of 1773 that I took the original goose (now in my possession) with three others (then very little goslings) in the fens between Cambridge and Ely. An old wild goose taking flight from some sedge and rushes, led me to the discovery of them. In the spring of 1774 two only remained, one having taken wing and flown off, and another having fallen by the hand of the cook; the remaining two being females, we were disappointed of a brood that year.”

The writer then goes on to state that the following year (1775) a common gander was introduced, and several cross-bred birds were reared, some of which had been sent, as above intimated, to John Hunter. These are described by Walcot as “constantly resembling the original goose, both in delicacy of shape and colour, which is that of the wild goose, with some white under the tail.” In a note appended to this letter Hunter has written, “This goose is of the sort called Gray-legs, or Rush-goose, the only one of the tribe that breeds in this country; and is the only one fit for the table.” When Pennant wrote his ‘British Zoology,’ the first edition of which was published in 1766 (the same year as the 12th edition of the ‘Systema’ of Linnæus), he remarked of the Greylag Goose:—“This species resides in the fens the whole year; breeds there, and hatches about eight or nine young, which are often taken, easily made tame, and esteemed most excellent meat, superior to the domestic goose. The old geese which are shot are plucked and sold in the market as fine tame ones, and readily bought, the purchaser being deceived by the size, but their flesh is coarse. Towards winter they collect in great flocks, but in all seasons live and feed in the fens.” It may have been a little later than this, perhaps, that the Rev. W. B. Daniel took young Wild Geese in the fens, as related in the third volume of his ‘Rural Sports’ (p. 242), published in 1807. “This species (the Greylag),” he says, “inhabits the English fens, and it is believed does not migrate, as in many countries on the Continent, but resides and breeds in the fens; they sit thirty days, and hatch eight or nine young, which are often taken; are esteemed most excellent meat, and are easily made tame. The compiler took two broods one season, which he turned

down, after having pinioned them, with the Common Geese; both parties seemed shy at first, but they soon associated, and remained very good friends." Mr. Cordeaux, in his 'Birds of the Humber District' (p. 147), refers to the Greylag as "at one period a permanent resident in our country, breeding in considerable numbers in the fens of Lincolnshire and carrs of Yorkshire," but he does not tell us when they ceased to breed there. Nor does Mr. W. E. Clarke give any information on this point in the 'Hand-book of Yorkshire Vertebrates,' contenting himself with the remark (p. 53) that the Greylag "has long ceased to breed in the Yorkshire carrs, where it was formerly abundant and resident." Perhaps when Mr. Stevenson publishes the third volume of his 'Birds of Norfolk' (which let us hope will be soon) he will enlighten us as to the last breeding-place of the Greylag in the Eastern Counties.—J. E. HARTING.

SCIENTIFIC SOCIETIES.

ENTOMOLOGICAL SOCIETY OF LONDON.

July 4, 1883.—Prof. J. O. WESTWOOD, M.A., F.L.S., &c., Hon. Life-President, in the chair.

A. Eland Shaw, Esq. (92, Elgin Road, Harrow Road, W.), was balloted for and elected a Member of the Society.

Mr. R. M'Lachlan exhibited specimens of *Phylloxera vastatrix*, Planch., from the roots of vines belonging to Mr. J. E. Lightfoot, Mayor of Accrington.

Prof. Westwood remarked that he became acquainted with the *Phylloxera* in Britain as long ago as 1862, and that on November 25th, 1867, he described and figured this insect, at a meeting of the Ashmolean Society in Oxford, under the name of *Peritymbia vitisana*, which name (had the Proceedings of the Ashmolean Society been regularly published) would have had priority over M. Planchon's *Rhizaphis vastatrix*.

Miss E. A. Ormerod exhibited a bunch of *Atherix Ibis*, Fabr., found on a sprig of alder overhanging water at Hampton Court by Mr. J. Arkwright. The swarm of flies measured about 6 in. long by 3 in. broad, and consisted of many thousand specimens.

Mr. E. A. Fitch called attention to the figure of a similar swarm ('Compte-rendu,' Soc. Entom. Belg. 1874).

Mr. W. L. Distant exhibited specimens of four of the five known species of American *Fulgoridæ*, of which three were from Central America.

Mr. G. C. Champion stated that in Central America he had kept forty or fifty specimens alive for days, and had seen no trace of luminosity, neither did they stridulate. He had not infrequently found larvæ attached to and feeding on the white cottony secretion so abundant about some of the smaller *Fulgoridæ*; he had found as many as three larvæ attached to one imago.

Prof. Westwood commented on the great interest of this last announcement, remarking that the three cases of lepidopterous parasitism on the *Fulgoridæ* already recorded by him (Trans. Ent. Soc. Lond. 1876, p. 519; 1877, p. 433) occurred on eastern species.

The Secretary, on behalf of Mr. G. Lewis, exhibited the types and material used by Dr. Sharp for his memoir on the Japan *Pselaphidæ*. Also the specimens on which Mr. Lewis has founded his new species of *Lucanidæ*, and which will be figured in the 'Transactions.' Another box was also exhibited containing twenty-four male examples of *Cladognathus inclinatus*, Motsch., showing the large and small forms with various connecting links.

Dr. D. Sharp communicated a "Revision of the *Pselaphidæ* of Japan." These consist of sixty-seven species assigned to seventeen genera, nine of which are peculiar to Japan.

Mr. G. Lewis communicated a paper "On the *Lucanidæ* of Japan."

Prof. Westwood and Dr. F. Leuthner made some extended remarks on this memoir and on Mr. Lewis's exhibitions.

Mr. P. Cameron communicated the "Descriptions of sixteen new species of parasitic *Cynipidæ*, chiefly from Scotland."

Prof. Westwood read a "Further notice concerning the Fig Insects of Ceylon."—E. A. FITCH, *Hon. Secretary*.

NOTICES OF NEW BOOKS.

On the Gapes Disease in Gallinaceous Birds, and on the Parasite which causes it. By PIERRE MÉGNIN. 8vo, 23 pp., with two coloured plates. London: West, Newman & Co. 1883.

THERE exists amongst gallinaceous birds, especially amongst the young of from one to six months old, a serious malady in the form of an epidemic known as "gapes" (from its chief symptom, a frequent yawning or gaping), and this malady, as many game-preservers know to their cost, is very frequently fatal. Various conjectures have been made as to its cause and origin, and various remedies, or so-called remedies, have been prescribed by keepers; but until lately no really satisfactory and scientific researches on the subject have been carried out.

It has, of course, long been known that the disease is caused by parasitical worms which attach themselves to the trachea, and which by preventing the passage of air, cause death by suffocation. But these parasites had not been traced through their earlier or embryonic stages, and there was still a good deal to learn about

them, when Lord Walsingham, in the interests of sport, as well as of science, in July, 1879, offered two prizes for the best essays comprising complete life-histories of the entozoic parasites to which the disease called "gapes" and the "grouse-disease" have been attributed. The Council of the Entomological Society was asked to award the prizes, and one of the two received essays on "gapes" is that by Dr. P. Mégnin, the well-known French helminthologist, which, in an English dress, is now before us. We say in an English dress, because in the year following the announcement of the competition—namely, in 1880—Dr. Mégnin published his treatise in the 'Bulletin de la Société Zoologique de France,' from the pages of which we had just commenced a translation of the essay for publication in this journal, when we learnt that an English version was already in progress, or at least in contemplation. Having read it in its original form, and having now glanced over the English translation, we lose no time in recommending its perusal to all naturalists and sportsmen who may read these lines.

They will not find it by any means dry or unprofitable reading; for the essay discloses a very singular state of things, which has been brought to light by the patient research of Dr. Mégnin, and places in a clear light all that has been hitherto ascertained in regard to the life-history of *Syngamus trachealis*, as this curious entozoic parasite is called.

The accompanying plates, on which are coloured figures of the entozoa magnified, and a section of the trachea of a Pheasant as it appears with the parasites attached, enable one to form an excellent notion of the nature of the disease, and of the serious consequences to the birds which are attacked by it.

The attacks are not confined to Pheasants, for it appears that *Syngamus trachealis* has been discovered in the tracheæ of the Magpie, Swift, Starling, Green Woodpecker, Partridge, and Black Stork, as well as in various breeds of domestic poultry.

After tracing its life-history, Dr. Mégnin points out the various modes in which the disease may be spread, and concludes by detailing several modes of treatment. Every sportsman who rears Pheasants should procure a copy of this essay and discuss it with the head-keeper. If experiments are then made next "hatching out" season, it would be interesting to receive reports of the results obtained.

Transactions of the Norfolk and Norwich Naturalists' Society.

Vol. III., Part 4. Norwich: Fletcher & Son. 1883.

It was not without good reason that the President of this Society, Mr. H. D. Geldart, at the annual meeting held at Norwich in March last, congratulated the members on the very flourishing state of the Society. He was able to announce a steady increase in the number of members, useful additions to the library, and the exchequer in a satisfactory condition. He might have gone further, and congratulated the members upon the excellent quality of the papers which are periodically printed in the Society's 'Transactions,' a circumstance which, it must be admitted, contributes very materially to the stability of the Society.

In the part before us we have an exceptionally good number, containing papers not merely of local interest, but important contributions to general Zoology.

It has long been known that many of the lower animals contain granules of chlorophyll, and it has been found that this chlorophyll, tested by the spectroscope, is chemically identical with the true chlorophyll of green leaves, and several theories have been advanced to account for the presence of these green bodies in such animals as *Hydra viridis*, and *Spongilla*. One theory is that the green bodies are true chlorophyll granules; another that they are not produced by the animals themselves, but are parasites; and a third that in the Protozoa, at all events, they are merely portions of vegetable organisms which have been absorbed. Mr. Geldart selected this theme for his Presidential Address on the occasion above referred to, and in the part of the 'Transactions' now before us will be found his *résumé* of the observations of Herr Brandt and Mr. P. Geddes, communicated to the Physiological Society of Berlin and the Royal Society of Edinburgh respectively, embodying an instructive account of the most recent investigations on this subject.

In this same part, also, Mr. Geldart has an original paper on Marine Algæ, forming Part X. of the "Fauna and Flora of Norfolk." Most of the sea-weeds collected on the Norfolk coast, it seems, are water-borne, and often show by their condition that they have come from a considerable distance, few if any rocks being accessible, even at the time of the lowest tides. It is to this cause that Mr. Geldart attributes the absence of a good

many conspicuous species of Algæ which might otherwise be fully expected to occur.

"The Scenery of Norfolk" and "Additional Notes on its Springs and Spas" are the titles of two papers by Mr. H. B. Woodward, in the former of which, extending over twenty-six pages, the writer considers—(1) the geological influences which have affected the form of the ground; (2) the physical geography, including the modifying influences of rain, rivers, and sea on the land in recent times, and the introductions of the forms of life, without which the scenery would be bare and uninteresting; and (3) the artificial features of the country consequent upon the changes wrought by man in all directions. To zoologists this paper will be interesting for the notice which it contains of the extinct animals of Norfolk, and to the former denizens of the great forest, chiefly of firs and yews, which at one time covered a large portion of the area of the North Sea. The Bear, the Glutton, many remarkable Deer, the Rhinoceros, Hippopotamus, Beaver, two (if not three) species of Elephant, and other mammals, have left their remains, says Mr. Woodward, to tell the tale of the former inhabitants of the Pleiocene period.

Of recent and existing mammals Mr. Southwell is the chronicler in the current number of the Norfolk 'Transactions.' In a paper on the Beaked or Bottle-nosed Whale (pp. 476—481) he shows that *Hyperoodon latifrons*, Gray, is identical with *H. rostratus*, the commonest of the three species of ziphioid Whales which have been met with in British seas. Capt. Gray, who has had great experience as a whaler of these animals, and who, in 1882, killed no less than 203 of them, is of opinion that the great differences observable in the skull and external appearance of these whales are sexual, and are gradually assumed as maturity is reached. They are very difficult to kill, and dangerous to approach without great caution when wounded; and Capt. Gray has known them to run out 700 fathoms of line, and to remain under water for two hours. After this salmon-fishing would seem child's play!

In another paper contributed by Mr. Southwell (pp. 482—503) will be found an interesting account of the operations of the sealers in Greenland, with statistics concerning the past and present distribution of the northern Seals, and some notice of their habits. The five species of Seal chiefly hunted in the northern seas are the Common Seal, the Ringed, the Greenland

(Harp, or Saddle-back), the Bearded, and the Hooded (or Bladder-nosed) Seals. The Grey Seal has occurred in the Greenland seas, but is not known to the sealers.

It is satisfactory to know that a "close time" for Seals has been enforced by legislation for the last five years, and that, in the opinion of experienced sealers like Capt. David Gray, it has been productive of good, although it would seem that many years must elapse ere the Seals recover from the effects of the cruel and short-sighted way in which they have been hunted down.

With such observant ornithologists in the county as Messrs. Stevenson and Gurney (*père et fils*) it is no wonder that the records of Norfolk birds are well kept. In the present number Mr. Stevenson continues his annual series of "Ornithological Notes," which are supplemented, in a separate article, by Mr. J. H. Gurney, jun.

Mr. Stevenson also has an article on the occurrence of the Dusky Shearwater, *Puffinus obscurus*, Gmelin, in Norfolk, an event which was first announced by him in 'The Zoologist' for 1858 (p. 6096). Having recently had an opportunity of re-examining the specimen, which has, fortunately, been preserved, he is able not only to confirm the opinion which he formerly expressed as to its true species, but to add a careful description of the plumage, instituting at the same time a comparison of its dimensions with those of *Puffinus anglorum*, our common Manx Shearwater. The specimen in question was found by a game-keeper on the Earsham estate, near Bungay, in April, 1858. It is curious that the only British—in fact, the only European—specimen of another rare Petrel (*Procellaria hæsitata*) was similarly procured in Norfolk in March or April, 1850, when it was picked up on a heath at Southacre, near Swaffham. And now, in the number of the 'Transactions' before us (p. 474), Mr. Southwell records the occurrence of the Sooty Shearwater, *Puffinus griseus*, Gmelin, at Lynn, in July, 1851. This bird Mr. Southwell purchased alive, and kept for some days in his garden until it died, when it was preserved for the Lynn Museum. It seems not improbable that *Puffinus griseus* has been mistaken (as it was at first by Mr. Southwell) for the young of the larger white-breasted *P. major*, and perhaps it is not so rare in British waters as has been hitherto supposed.

Those who keep cage-birds would do well to read Mr. John

Young's account (pp. 519—524) of the habits of the Bearded Tit in confinement as observed by himself. He has kept these birds alive for many years, and has had several nests made and eggs laid at different times, though no young birds were hatched.

Mr. E. Bidwell (p. 526) gives a long list of birds in whose nests the egg of the Cuckoo has been found. No less than eighty-six species are named, amongst the most remarkable being the Dipper, the Rock Thrush, Fieldfare, Ring Ouzel, Jackdaw, Magpie, Jay, Swallow, Ring Dove, Stock Dove, Turtle Dove, and Little Grebe (!). It would have added much to the value of Mr. Bidwell's list if he had given the particulars relating to the most uncommon foster-parents, for although such details may perhaps be found elsewhere, many of them would have to be looked for, at some inconvenience, in publications not accessible to the general reader. Two cases of young Cuckoos in Swallows' nests have been recorded in 'The Zoologist' (1869, p. 1866; 1877, p. 260), but we should like to have the history of the Cuckoo's egg in the Little Grebe's nest. It is difficult to conceive that the young bird could be reared by such a singular foster-parent, by whom, with intentional kindness, it would be almost certain to be drowned. This leads us to enquire whether any of our readers have been able to observe the fate of young Cuckoos hatched in Reed Warblers' nests over water. Everyone knows that the Reed Warbler's nest is very commonly visited by the parent Cuckoo. In the case of Wagtails, Pipits, and other small birds whose nests are on *terra firma*, it is also well known that the young Cuckoo quits the nest before it is able to fly, and may be seen at some distance from it being fed by its foster-parents. But what happens when the nest is over water? Is the young Cuckoo so good a climber that it can get ashore without the aid of its wings, or does it continue to be fed in the nest until well able to fly? One would expect, under the circumstances, a higher rate of mortality amongst young Cuckoos so situated than amongst their more favoured relatives on dry land.

Transactions of the Essex Field Club. Vol. III., Part 1. Published by the Club, Buckhurst Hill, Essex. 1883.

DURING the last twenty years we have become aware of the promotion in various parts of the country of a great number of

Field Clubs and local Natural History Societies; we have watched their progress, and have perused with interest their published 'Transactions' as they have appeared. Some have succeeded from the first, have been energetically supported by practical naturalists, and have printed papers of permanent value. Others, although possessing a larger number of members, and enjoying facilities for reference to public libraries and museums in the towns of their birth, have never risen above mediocrity, and have published little that was worth printing.

We have no hesitation in placing the Essex Field Club in the first category; for although of comparatively recent foundation (1880) it has already established a reputation, and takes a leading position amongst local Natural History Societies. Two volumes of 'Transactions' have been published, and the first Part of Vol. III. is now before us.

Of this Part 152 pages are devoted to original papers by members of the Society and 80 pages to the journal of proceedings at ordinary, field, and other meetings, besides two Appendices; so that the annual volume, as may be supposed, is one of no mean proportions.

The contents are of a tolerably varied character. In the present part we find an excellent account of the ancient fauna of Essex, by Dr. Woodward, with ten illustrations; a list of the Macro-Lepidoptera around Maldon, by G. H. Raynor; a paper on Dene-holes, by T. V. Holmes; Mr. Meldola's Presidential Address on Modern Evolution; an obituary memoir of the late Sir Antonio Brady; a paper on Primæval Man in the Valley of the Lea, by Worthington Smith, with twenty-four woodcuts; and another on the species of the genus *Primula* in Essex, by R. M. Christy. In addition to these there are a number of shorter papers, all of more or less interest to specialists.

The Journal of the Society contains, amongst other things, a full record of its proceedings in relation to the conservation of Epping Forest, in regard to which the Essex Field Club (mainly through the instrumentality of its energetic Honorary Secretary, Mr. W. Cole) played a very effectual part. These local records will some day form an important chapter in the history of Epping Forest.

